



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,602	07/20/2006	Yoshiyuki Muraoka	043890-0932	5740
53080	7590	04/28/2009	EXAMINER	
MCDERMOTT WILL & EMERY LLP			ARCIERO, ADAM A	
600 13TH STREET, NW				
WASHINGTON, DC 20005-3096			ART UNIT	PAPER NUMBER
			1795	
			MAIL DATE	DELIVERY MODE
			04/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/586,602	MURAOKA ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	ADAM A. ARCIERO	1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 09 January 2009.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 3 and 4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 3-4 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ .  | 6) <input type="checkbox"/> Other: _____ .                        |

**NONAQUEOUS ELECTROLYTE SECONDARY BATTERY**

Examiner: Adam Arciero      S.N. 10/586,602      Art Unit: 1795      April 15, 2009

**DETAILED ACTION**

1. The Applicant's amendment filed on January 09, 2009 was received. Claim 3 is currently amended. Claims 1-2 were canceled.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

3. The claim rejections under 35 U.S.C. 103(a) as unpatentable over HOSOYA et al. on claims 1-2 are withdrawn, because Applicant has cancelled the claims.
4. The claim rejections under 35 U.S.C. 103(a) as unpatentable over HOSOYA et al. and UENAE on claim 3 is withdrawn, because Applicant's arguments are persuasive.
5. The claim rejections under 35 U.S.C. 103(a) as unpatentable over HOSOYA et al., UENAE and OHZUKU et al. on claim 4 is withdrawn, because Applicant has amended independent claim 3.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over HATAZAKI et al. (US 2001/0038949 A1) in view of HOSOYA et al. (US 2004/0076882).

As to Claim 3, HATAZAKI et al. discloses a nonaqueous electrolyte secondary battery comprising: a positive electrode with an active material, a negative electrode with an active material, a separator and a nonaqueous electrolyte (Abstract and pg. 2, [0031]). HATAZAKI et al. further discloses wherein said positive active material comprises a first active material of  $\text{Li}_x\text{CoO}_2$  mixed with a second active material, such as  $\text{Li}_x\text{MnO}_2$ , where  $0 \leq x \leq 1.2$  (pg. 3, [0053]). This prior art range overlaps the claimed range of 0.9-0.98. The courts have held that in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, it is the position of the Examiner that properties of the cathode active materials, such as the average discharge voltage of the first material compared to that of the second material, are inherent, given that the active materials disclosed by HATAZAKI et al. and the present application have the same chemistry. Inherency is not established by probabilities or possibilities. *In re Robertson*, 49 USPQ2d 1949 (1999). HATAZAKI et al. does not specifically disclose the added amount of the active materials in the positive active material mixture.

However, HOSOYA et al teaches of a lithium-ion battery (nonaqueous electrolyte battery) comprising a negative electrode having an active material such as graphite which is capable to dope and dedope lithium (pg. 4, [0057]), a positive electrode having a positive active material of a first active material and a second active material of lithium transition metal oxides (pg. 4, [0046]), a nonaqueous electrolyte (pg. 4, [0039]) and a separator (pg. 4, [0039]). The

second lithium transition metal oxide has an average discharge voltage of at least 0.05V or more than that of the first lithium transition metal oxide (pg. 2, [0018]) and the preferred amount of the second lithium transient metal oxide is in the range of 4-50% (pg. 9, [0124]). This prior art range encompasses the claimed range of 5-20%. The courts have held that in the case where “prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a *prima facie* case of obviousness.” *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). Furthermore, HOSOYA et al. teaches the mixing ratio as being a results effective variable in that when the range is less than 4% it is difficult to sufficiently lower the cathode potential causing degradation of over-discharge resistance, and wherein second composite oxide material is greater than 50%, a discharge curve is shifted toward a low voltage side, and the battery becomes susceptible to lowering of battery capacity (pg. 9, [0124]). The courts have held that optimization of a results effective variable is not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over HATAZAKI et al. (US 2001/0038949 A1) and HOSOYA et al. (US 2004/0076882) as applied to claim 3 above, and further in view of YAMASHITA et al. (US 6,387,564 B1).

As to Claim 4, the combination of HATAZAKI et al. and HOSOYA et al. does not expressly disclose the composition of the first active material expressed in claim 4. HATAZAKI et al. teaches  $\text{Li}_x\text{CoO}_2$  as being a first active material (pg. 3, [0053]). However, YAMASHITA et al. teaches a nonaqueous electrolyte battery comprising a positive active material of  $\text{Li}_x[\text{CoNi}]_{1-y}\text{Mn}_y\text{O}_2$  wherein  $0 \leq y \leq 1$  (col. 8, lines 16-26). These ranges overlap or lie inside the claimed ranges of the present application. The courts have held that in the case where the claimed ranges

“overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to substitute the active material of YAMASHITA et al. for the first active material ( $\text{Li}_x\text{CoO}_2$ ) of HATAZAKI et al. and HOSOYA et al., because YAMASHITA et al. teaches that this will achieve a battery which is excellent in discharging characteristics at a high current density and cycle characteristics (co.. 3, lines 1-2).

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 3-4 have been considered but are moot in view of the new ground(s) of rejection as necessitated by Applicant's amendments to the claims.

*Applicant's principal arguments are:*

a) *HOSOYA et al. does not disclose an amount of the second active material being at least 5% and at most 20% thus yielding a discharge curve having points of the step-like inflection and fails to recognize the unexpected results obtained by limiting the material to the claimed range (claim 3).*

b) *HOSOYA et al. teaches  $\text{LiCoO}_2$  wherein the amount of Li does not fall into the claimed range of 0.90 to 0.98. By limiting the amount to said range, unexpected results occur such as the decrease in voltage near the end of the discharge, thereby alleviating a drastic rise in temperature (claim 3).*

In response to Applicant's arguments, please consider the following comments.

a) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. "...a discharge curve having points of the step-like inflection") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, HOSOYA et al. teaches of a range which encompasses the range claimed by the Applicant and therefore would render obvious to one with ordinary skill in the art to apply the teachings of HOSOYA et al. so as to obtain a battery having optimum capacity and cycle characteristics.

b) Applicant's arguments (b) with respect to claim 3 above are found to be persuasive and the original rejection of claim 3 is withdrawn.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADAM A. ARCIERO whose telephone number is (571)270-5116. The examiner can normally be reached on Monday to Friday 8am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795